

Rhodora

JOURNAL OF THE
NEW ENGLAND BOTANICAL CLUB

Conducted and published for the Club, by

REED CLARK ROLLINS, Editor-in-Chief

ALBERT FREDERICK HILL
STUART KIMBALL HARRIS
RALPH CARLETON BEAN
RICHARD ALDEN HOWARD
CARROLL EMORY WOOD, JR.

} Associate Editors

Vol. 54

October, 1952

No. 646

CONTENTS:

- New Potamogeton Records in New Hampshire. *A. R. Hodgdon,*
P. Giguere, S. B. Krochmal and A. Riel 237
- Notes on the Genus *Carex* I: A New Species of *Carex* from Western
Canada. *J. A. Calder* 246
- New Missouri Plant-Records (1949-1951). *Julian A. Steyermark*. 250
- Cardamine digitata* Richardson (Cruciferae). *R. C. Rollins* 260

The New England Botanical Club, Inc.

8 and 10 West King St., Lancaster, Pa.

Botanical Museum, Oxford St., Cambridge 38, Mass.

QK

i

.R47

RHODORA.—A monthly journal of botany, devoted primarily to the flora of the Gray's Manual Range and regions floristically related. Price, \$4.00 per year, net, postpaid, in funds payable at par in United States currency in Boston; single copies (if available) of not more than 24 pages and with 1 plate, 40 cents, numbers of more than 24 pages or with more than 1 plate mostly at higher prices (see 3rd cover-page). Back volumes can be supplied at \$4.00. Some single numbers from these volumes can be supplied only at advanced prices (see 3rd cover-page). Somewhat reduced rates for complete sets can be obtained on application to Dr. Hill. Notes and short scientific papers, relating directly or indirectly to the plants of North America, will be considered for publication to the extent that the limited space of the journal permits. Illustrations can be used only if the cost of engraver's blocks is met through the author or his institution. Forms may be closed five weeks in advance of publication. Authors (of more than two pages of print) will receive 15 copies of the issue in which their contributions appear, if they request them when returning proof. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to Reed C. Rollins,

Gray Herbarium, 79 Garden Street, Cambridge 38, Mass.

Subscriptions (making *all remittances* payable to RHODORA) to Dr. A. F. Hill, 8 W. King St., Lancaster, Pa., or, preferably, Botanical Museum, Oxford St., Cambridge 38, Mass.

Entered as second-class matter March 9, 1929, at the post office at Lancaster, Pa., under the Act of March 3, 1879.

INTELLIGENCER PRINTING COMPANY
Specialists in Scientific and Technical Publications
EIGHT WEST KING ST., LANCASTER, PA.

**CARD-INDEX OF NEW GENERA, SPECIES AND
VARIETIES OF AMERICAN PLANTS**

For all students of American Plants the Gray Herbarium Card-index of Botanical Names is indispensable. It is a work of reference essential to scientific libraries and academies and all centers of botanical activity. It includes genera and species from 1885 to date. The subdivisions of species from 1885 to date are now included and from 1753 to 1886 are in the process of being inserted. Issued quarterly, at \$25.50 per thousand cards.

GRAY HERBARIUM of Harvard University,
Cambridge 38, Mass., U. S. A.

Rhodora

JOURNAL OF THE NEW ENGLAND BOTANICAL CLUB

Vol. 54

October, 1952

No. 646

NEW POTAMOGETON RECORDS IN NEW HAMPSHIRE¹

A. R. HODGDON,² P. GIGUERE,³ S. B. KROCHMAL³ AND A. RIEL³

DURING the past five or six seasons probably some two or three times as many collections of pondweeds have been made in New Hampshire as had been accumulated in all previous time. Chiefly responsible for this contemporary surge of activity has been the New Hampshire State Fish and Game Department which for several years has been conducting the "Waterway Improvement Survey for Waterfowl" under the direction of Mr. Hilbert Siegler. Early in their study which necessarily included observations on the kinds and quantities of available aquatic plants the technical workers made contact with the late Rev. Hubert J. Sheehan O. S. B. of St. Anselm's College in Manchester and also with the senior author of this paper.

By far the greater part of the specimens collected during the work were taken by Stanley B. Krochmal one of the present authors but valuable collections were made from time to time by others on the "survey." Although other groups of aquatic plants were collected, the genus *Potamogeton* became the real lure, so much so indeed that it is said to have become finally a topic of breakfast conversation. It should further be mentioned that several years ago, Dr. Maurice Provost discovered some very significant stations for pondweeds, and other aquatics as well, in connection with earlier Fish and Game Department studies.

Collections made by those mentioned above are now to be

¹ New Hampshire Agricultural Experiment Station Scientific Contributions No. 144.

² Department of Botany, Agricultural Experiment Station, University of New Hampshire.

³ New Hampshire State Fish and Game Department, Concord, New Hampshire.

found variously distributed in four herbaria, namely, the State Fish and Game Department collection in Concord, Krochmal's private herbarium, and those of the University of New Hampshire and of St. Anselm's College. During the early autumn of 1950 two of the present authors (Giguere and Riel) as part of the work in a graduate course in botany at the University of New Hampshire, elected to identify or verify, as well as record and map, all of the available relevant herbarium material, to record and map all reports in the literature, and finally to observe and collect as much field material as the lateness of season would permit. Their efforts were rewarded somewhat beyond anticipation by the discovery of some new stations for *Potamogeton confervoides* in the vicinity of Durham.

This paper is based upon two principal sources of information in addition to the recent collections: (1) gleanings from the Monographic Studies of St. John,⁴ Fernald⁵ and Ogden⁶ for records from New Hampshire, (2) inspection of exsiccateae in the following herbaria in addition to that of the University of New Hampshire, the Jesup Herbarium at Dartmouth, the St. Anselm's College Herbarium in Manchester, the Gray Herbarium, and the New England Botanical Club Herbarium. In addition, full attention has been given to recent literature and in particular to "local floras," only a few of which, of course, deal much with such obscure plants as pondweeds.

The authors wish to thank the curators of the several herbaria mentioned above for permitting the use of their specimens.

Of the nine species and varieties of *Potamogeton* to be discussed here, only one seems previously to have been entirely unreported from New Hampshire. However, the other eight have been collected, before this, only from one or at most a few often well known and publicized stations or else, if more abundant, have been known earlier only from one geographical section of the state such as the Connecticut Valley. It is apparent then that these additional stations represent in all cases significant expansions of the known ranges in New Hampshire.

P. PECTINATUS L.—So characteristic is this species, once its diversity of form is properly recognized, that it is surprising only

⁴ RHODORA, XVIII. 121-138 (1916).

⁵ Mem. Am. Acad. Arts and Sci. XVIII. pt. 1 (1932).

⁶ RHODORA, XIV 57-105, 119-163 and 171-214 (1943).

two stations for it in New Hampshire are well known. The Jesup collection from the Connecticut River at Hanover is both abundantly distributed among herbaria and adequately reported in the literature. The 1886 collection of it by Walter Deane in a "brackish pond," Rye, apparently was not known to St. John, loc. cit., who cited only the Hanover station. In July 1948 specimens of undoubted *P. pectinatus* (not in fruit) but growing in considerable abundance were collected by Hodgdon, Richards, and Leighton in shallow water near the New Hampshire shore of the Connecticut River in the towns of Claremont and Charlestown, Sullivan County. Later in the summer, collections were made by Krochmal in Orford and Piermont, Grafton County, also from the Connecticut River. What is most surprising and certainly warrants more investigation is its appearance in Pausaugus Bay, Laconia, Belknap County, where it was collected by Krochmal in September, 1948. These recent collections of *P. pectinatus* are all somewhat unusual as to leaf-shape although they all possess the fundamental diagnostic characteristic of "straight cross partitions." Indeed they closely match descriptions and authentic herbarium-specimens except that the leaves are mostly broader than 1 mm., in their wider parts, and actually appear to be hardly "setaceous" or "bristle-like." (Phrases in quotation marks are from standard descriptions.) The statement by St. John, loc. cit., p. 124 commenting on the leaves "(those of the first year's shoot often broader and blunt)" should possibly receive wider circulation if our difficulties in identifying purely vegetative specimens are any indication of the problems others may encounter.

P. confervoides Reichenb. For some time the classical stations for *P. confervoides* in New Hampshire were Ethan's Pond (Willey Pond) on Mt. Willey, Lonesome Lake in Lincoln, Crawford Trout Pond and the present Saco Lake. Other localities near by where it was collected by Robbins, Oakes or Tuckerman apparently are not now known with certainty. Pease collected it many years ago in Dream Lake, Shelburne and Little Cherry Pond, Jefferson. In Maine *P. confervoides* was taken in 1891 by Fernald from Round Pond, Berwick at nearly sea-level and later was reliably reported from Mt. Katahdin. A much more recently discovered station is Newbert Pond, Appleton in Knox

County. Similarly in Massachusetts, while not common, the species again is found in acid-ponds (probably) at low elevations in Tewksbury, New Bedford, Dartmouth, and Uxbridge with a station at much higher altitude in Berkshire County. Considering its apparent great rarity in Maine and the four or five reported stations in much botanized eastern Massachusetts it comes as something of a surprise to find it appearing in ten different ponds in eight townships in southern New Hampshire. A report of *P. Tuckermani* Robbins from Claremont by Jesup⁷ (at present unverified) may prove to be *P. confervoides*. A considerable number of stations occur, therefore, in the southern quarter or third of the state and none apparently between there and Albany, a distance of about fifty miles. These several new stations are as follows: Sullivan Co., Washington, Frog Pond, July 1, 1947, *E. Gould*, and North Pond, June 30, 1947, *E. Gould*; Cheshire Co., Fitzwilliam, Sip Pond, *Krochmal* 947; Merrimack Co., Warner, *Krochmal*; Hooksett, Lakin's Pond, July 12, 1940, *M. Provost*, and Clay Pond, *Krochmal* 851; Hillsboro Co., New Ipswich, Hoar Pond, *Krochmal* 915; Nashua, Round Pond, June 11, 1946, *Gould*; Rockingham Co., Nottingham, Pea Porridge Pond, *Giguere and Riel* 140, *Riel* 217; Strafford Co., Somersworth, Willand Pond, *Hodgdon, Giguere, Riel et al.* Many of these collections are in excellent fruiting condition; all are otherwise characteristic of this very distinctive pondweed.

The Albany locality (Church Pond) was discovered in 1948 by Martha Gale, then a graduate student at the University of New Hampshire.

Before leaving *P. confervoides*, it is tempting to examine its extraordinary distribution in the light of these many New Hampshire stations. Fernald, loc. cit., pp. 35, 36 concluded that *P. confervoides* and other species of somewhat similar disrupted range occurring in the New Jersey Pine Barrens and also appearing in Northern New England, Newfoundland, etc., in mountainous areas are "really oxylophytes which within rather wide climatic limits are to be expected where highly acid conditions prevail." Further in this same discussion, Fernald suggested that over its entire range embracing Newfoundland, Nova

⁷ A catalogue of the Flowering Plants and Higher Cryptogams found within about thirty miles of Hanover, N. H. 48 (1891).

Scotia, New England, New York, New Jersey, and Pennsylvania, *P. confervoides* tends to inhabit two very different kinds of areas, low-altitude ponds on the one hand and ponds of considerable elevation on the other. Apparently at that time he was willing to explain the occurrence of *P. confervoides* along with other somewhat similarly disrupted species on the basis of their being oxylophytes as noted above. Fernald in the same reference, p. 36, concluded his consideration of this species by stating "From these facts it should be apparent that *Potamogeton confervoides* is to be looked for in the acid region from southern Labrador to the Great Lakes." Earlier, however, Fernald⁸ had suggested that *P. confervoides* was a preglacial relic in the elevated portions of its range and had stated that "If any lowland pondweed were in post-Wisconsin time to do the improbable and invade the elevated mountain-pools from sea-level, it would less unreasonably be a common or, in the region, essentially ubiquitous and less primitive species." With these relatively numerous and widespread New Hampshire stations of *P. confervoides* we are now in a more favorable position than was Prof. Fernald to appraise its distribution objectively. At the suggestion of Dr. S. K. Harris we have obtained altitude records and pH readings for nearly all of the stations.⁹ The following table includes any of the older stations which can be identified with some degree of certainty and all of the recent localities with the exception of a pond in Warner which was recorded only to township when collected. They are arranged in the order of their increasing altitude. The pH readings are those recorded for the pond-surfaces and therefore only partially characterize the plants environment.

It is to be noted that seven stations occur between 100 and 1000, seven others between 1100 and 2000, and two more above 2700 feet elevation. There is no concentration of stations at any particular altitude, either high or low. It must be concluded that the range of *P. confervoides* in New Hampshire is not significantly of either a low- or high-altitude character. Although the acidity-records of the known localities for *P. confervoides* in New Hampshire are somewhat incomplete, it seems likely that all

⁸ RHODORA, 33: 59. (1931).

⁹ The authors are much indebted to Mr. Hilbert Siegler, Senior Biologist, New Hampshire State Fish and Game Department, who very generously has supplied most of the pH and altitude-data for the table from as yet unpublished surveys.

TABLE I
LOCATION, ALTITUDE AND ACIDITY OF NEW HAMPSHIRE STATIONS OF
P. confervoides

Name of Pond	Township or Location	Alt. in ft.	pH
Willand Pond	Somersworth-Dover	184	—
Round Pond	Nashua	180-200	6.0
Pea Porridge Pond	Nottingham	222	5.8
Lakin's Pond	Hooksett	313	6.1
Clay Pond	Hooksett	427	5.5
Sip Pond	Fitzwilliam	884	6.4
Hoar Pond	New Ipswich	962	6.1
Little Cherry Pond	Jefferson	1102	6.0
Church Pond	Albany-Livermore	1220-1240	6.2
Frog Pond	Washington	1610	6.1
North Pond	Washington	1653	5.2
Crawford Lake	Crawford Grant	1771	6.4
Saco Lake (perhaps Crawford Trout Pond)	Nash & Sawyer Location	1891	6.2
Dream Lake	Shelburne	1900	6.2
Lonesome Lake	Lincoln	2750	6.1
Ethan's Pond (? Willey Pond)	Bethlehem	2840	—

stations are definitely acid and some where it particularly abounds, as in Pea Porridge Pond, are strongly acid. The following table lists in vertical columns the percentages of New Hampshire stations for *P. confervoides* in each of several pH ranges as compared with the percentages of reported ponds in the several River-systems of the State, in those same pH ranges.¹⁰ Not by any means are there acidity data for all of the ponds and lakes in New Hampshire in these reports. However, it is hoped that those which have been reported will eventually prove to have been a fairly representative sampling.

Of the 401 ponds and lakes for which we have surface pH data, 280 or nearly 70% are less acid than any of those which have *P. confervoides*, 57 or more than 14% are less acid than all except two of the stations. It seems evident then that this pondweed is characteristic only of acid-waters as was pointed out by Fernald.

If *P. confervoides* is an oxyphyte as seems to be the case and if it is adapted to ponds and lakes at all altitudes between sea-level and 3000 feet, as also seems to be true, it would seem that the species should appear wherever these two conditions occur.

TABLE II
PERCENTAGES OF PONDS IN NEW HAMPSHIRE IN CRITICAL pH
RANGES AS COMPARED TO PERCENTAGES OF *P. confervoides*
STATIONS IN SAME pH RANGES

Watershed	Number of Ponds and Lakes Reported	pH 6.5 or above	pH 6.4	6.2 or 6.3	6.0 or 6.1	Less than 6
Connecticut	108	68.5	12.9	9.25	7.4	1.8
Merrimack	220	74.5	12.7	8.2	.9	3.6
Coastal	17	53	29.4	0	17.6	0
Saco	39	51.25	18	18	10.25	2.55
Androscoggin	17	76.45	17.65	0	5.9	0
Stations of <i>P.</i> <i>confervoides</i> of which acidity is known	14	0	14.28	21.43	42.85	21.43

This does not seem to be true, however, for in New Hampshire, as in Maine and Massachusetts, there is an evident break or discontinuity in the range between the more southern, eastern or coastal stations and the more northern, western or inland stations which usually, but not by any means always, occur at higher elevations. Possible answers to this riddle might be that the intermediate areas have not been adequately botanized or that ecological conditions there are not now suited to the species. After recording and mapping all townships in New Hampshire having acid ponds in which we might most expect to find *P. confervoides* (pH 6.3 to less than 6) we find that such are widely distributed and occur frequently in the intermediate area where *P. confervoides* seems to be absent. Possibly the explanation involves recent geological or climatic history. Continued failure to disclose stations in ecologically suitable intermediate situations might lead one to the tempting hypothesis that the species

¹⁰ (See p. 7) Hoover, Earl E. Biol. Survey, Androscoggin, Saco and Coastal Watersheds, N. H. State Fish and Game Department, Surv. Rept. No. 2, Dec. 1937, and Biol. Survey, Merrimack Watershed, N. H. State Fish and Game Department, Surv. Rept. No. 3, Dec. 1938. Warfel, Herbert. Biol. Survey of the Conn. Watershed, N. H. State Fish and Game Department, Surv. Rept. No. 4, Dec. 1939.

achieved its present disjunct distribution at two quite different times. The more nearly continuous southern, eastern or coastal element conceivably attained its present range more recently than the more isolated northern, western or inland occurrences.

P. ZOSTERIFORMIS Fern.—No records of this species occurring in New Hampshire appear in the literature except an unverified report in Jesup, loc. cit., p. 48. If one studies the map in Fernald's monographic study of 1932, p. 37, the total absence of dots in New Hampshire is startling, particularly in view of the stations that are indicated on all sides. Now this gap can be bridged. The following records show the species not to be common but at least to be widely present in the state: Coos Co., Lancaster, *Krochmal* 1421; Carroll Co., Moultonboro, *Dodge and Sheehan* 579a; Belknap Co., Alton, *Krochmal* 1331 and Alton River, *Krochmal and Gould* 780; Merrimack Co., Boscawen, Walker Pond, *Krochmal* 620; Hillsboro Co., Nashua, Salmon Brook, *Poirier* 282; Sullivan Co., Charlestown, *E. Gould* 24; Cheshire Co., Hinsdale, Conn. River, *Krochmal* 2359.

P. OBTUSIFOLIUS Mertens & Koch—To the already known New Hampshire stations, Lime Pond, Columbia, Coos Co., and Enfield Pond, Enfield, Grafton Co. should be added the following which demonstrate the species to be widely distributed in New Hampshire though apparently not to be expected commonly; Coos Co., Pittsburg, Harris Pond, *Krochmal* 1577; Grafton Co., Littleton, several stations including Mullikan Pond, *Krochmal & Sheehan* 36; Lisbon, Perch Pond, *Krochmal* 1596; Haverhill, *H. Laramie and S. A. Dole*; Carroll Co., Moultonboro, Lake Wakondah, July 23, 1946, *John Dodge*; Rockingham Co., Deerfield, *Krochmal* 1502; Hillsboro Co., Weare, several stations including Peacock Brook, *Krochmal* 853.

P. BERCHTOLDI Fieber, and its varieties—A very large series of specimens has now accumulated including all of the varieties which might have been expected, on the basis of previous reports, to occur in New Hampshire. Var. *polyphyllus* has seemed to be the most rare having been reported previously from but one locality, Ladd Pond, Stewartstown. It continues to be represented the least although it is here reported from Coos Co., Pittsburg; Grafton Co., Haverhill; Belknap Co., Alton; Strafford Co., Durham and Lee; Sullivan Co., Croydon.

P. VASEYI Robbins—While this attractive and delicate pondweed has for some time been known from the Connecticut River or near it in Stewartstown, Hanover, and Lebanon, it may be worth while to add several records to the published list inasmuch as the newer ones are not all from the Connecticut Valley. They are: Coos Co., Lancaster, *Krochmal* 1422; Rockingham Co., Exeter, Exeter Reservoir, *Krochmal and Dodge* 357; Hillsboro Co., Manchester, Pine Island Lake, *Krochmal* 265 (det. by Fernald); Sullivan Co., Cornish, Blow-me-down Pond Aug. 11, 1940, *M. Provost*; Charlestown, Beaver Brook Marsh, *Krochmal*; Cheshire Co., Troy, *Krochmal* 971 (det. by Fernald).

P. PULCHER Tuckerm.—Ogden, loc. cit., p. 121 cites only one collection from New Hampshire and that in Jaffrey in the southwestern part of the state. It seems to be absent from Maine but does appear in southwestern Nova Scotia. A number of New Hampshire stations as follows have been found for it in recent years and all in the southern quarter of the state: Rockingham Co., Nottingham, Pawtuckaway Pd., *Krochmal* 396; Deerfield, Big Shingle Pond, July 15, 1940, *M. Provost*; Merrimack Co., Hooksett, Lakin's Pond, June 8, 1946, *Krochmal*; Hopkinton, Clement Pond, *Krochmal* 743; Dunbarton, Kimball Pond, *Krochmal* 166; Hillsboro Co., Hollis, pot hole, *Krochmal* 300 and No Name Pond, June 13, 1946, *E. Gould*; Peterboro, Contoocook River, *Krochmal* 888.

P. NODOSUS Poiret—Inasmuch as one of the three new records for New Hampshire is remote from the Connecticut River Valley where this species has long been known in Cornish and Hanover, it may be well to list all of the new stations which are as follows: Hillsboro Co., Hudson, Merrimack River, Sept. 10, 1948, *H. Laramie and S. A. Dole*; Sullivan Co., Charlestown, Aug. 7, 1947, *E. Gould*; Cheshire Co., Hinsdale, *Krochmal* 1256.

P. RICHARDSONII (Ar. Benn.) Rydb.—A considerable series of specimens has been taken in New Hampshire all in the Connecticut Valley or nearby and extending all the way from Colebrook to Westmoreland. Its occurrence here is to be expected, for the species, obviously a calcicole, has been reported widely from northern Maine and Quebec, as well as from northern and western Vermont. It has been collected once in Lancaster (Pease) too recently to be included in Ogden's monographic study. The new

records are as follows: Coos Co., Colebrook, Connecticut River, *Krochmal* 1389; Grafton Co., Monroe, Connecticut River, *Krochmal and Sheehan* 62; Lyman, Dodge Pond, *Krochmal and Sheehan* 57 and Ogontz Pond, *Krochmal* 1601; Orford, Upper Baker Pond, *Krochmal* 1467; Sullivan Co., Claremont, Connecticut River, *Hodgdon, Leighton and Richards*, 5885; Charlestown, Connecticut River, Aug. 7, 1947, *Gould and Krochmal*; Cheshire Co., Westmoreland, *Krochmal* 1205. Some of these collections are somewhat intermediate in vegetative character between *P. Richardsonii* and *P. perfoliatus* var. *bupleuroides*. These are the specimens from Colebrook, Dodge Pond in Lyman and Charlestown. We preferred to consider them as extremes of the former.

NOTES ON THE GENUS CAREX I:

A NEW SPECIES OF CAREX FROM WESTERN CANADA¹

J. A. CALDER

Carex raymondii sp. nov.

C. atratiformis Britton. Bull. Torr. Bot. Club, Vol. 22, p. 222, 1895 (*pro parte, typo excl.*).

Planta caespitosa rhizomatibus brevibus adscendentibus; culmi graciles, 3-7 dm. alt., multo longiores foliis, phyllopodici, summi minute vel valde scabri, acute triangulares; laminae basi foliorum subseptato-nodulosae, planae, marginibus revolutis, glaucovirides, (2.5)-3.5-(6.0) mm. lat., erecto-adscendentes, marginibus ad apicem scabris; vaginae ventrale albae, hyalinae, nonnunquam maculosae, ad summas purpureo-rubrae; ligulae a subquadratis ellipticae; folia inferiora reducta, purpureo-nigra vel pallide subfusco-purpurea; spicae densae 3-4-(7), approximatae, ellipsoideae vel interdum cylindricae, 1.1-2.0 cm. long. \times 4.5-8.0 mm. lat., superior gynaeandra (raro foeminea), laterales foemineae vel floribus inferioribus paucis masculis, inferiores paulum arcuatae pedunculis gracilibus scabris vel subglabris, superiores erectiores, pedunculis brevioribus; perigynia (7)-20-30-(50) in spica singula adpresso-adscendentia; bractea inferior foliacea, saepius culmo brevior, vagina brevissima, concolor cum culmo vel basi sparse rubro-purpurea; bracteae superiores subulatae et saepius basi rubro-purpureae; squamae anguste ovatae, acutae vel subacuminatae, 2.5-3.0 mm. long., nonnunquam longiores perigyniis sed saepius breviores, saepius sublucidae, pallide vel atre purpureo-rubrae, marginibus hyalinis obsoletis vel conspicuis, nervo singulo obsoleto vel conspicuo, saepius angusto, pallidiore; perigynia ovoidea vel suborbiculata, paulo inflata, 2.5-3.5 mm. long. \times 1.5-2.2 mm. lat., bicostata, enervosa, membranacea, granulosa, puncticulata, pallide castanea vel viridi-castanea, interdum ad summas \pm purpurascentia, breviter stipata, rostro 0.4 mm. long., bidentata,

¹ Contribution No. 1190, Division of Botany and Plant Pathology, Science Service, Canada Department of Agriculture, Ottawa, Canada.

plus minusve purpurea, apice hyalina; achenia media 1.4 mm. long. \times 0.9 mm. lat., granulosa, pallide brunnea; stigmata 3.

Plants caespitose with short, stout, ascending rhizomes; culms slender, 3–7 dm. high, much longer than the leaves, phyllopodic, minutely to strongly scabrous above, sharply triangular; blades of the leaves weakly septate-nodulose at base, flat with revolute margins, glaucous-green, (2.5)–3.5–(6.0) mm. wide, erect-ascending, scabrous-margined towards apex; the sheaths white-hyaline ventrally, occasionally purplish-red-spotted below the concave mouth; the ligule as long as broad or longer; lower leaves reduced, purplish-black to light brownish-purple; spikes 3–4–(7), approximate, ellipsoid or occasionally cylindric, 1.1–2.0 cm. long \times 4.5–8.0 mm. wide, the terminal gynaeandrous (exceptionally pistillate), the lateral either totally pistillate or with a few basal staminate flowers, the lower somewhat curved on slender, scabrous to almost glabrous peduncles, the upper more erect, on shorter peduncles; each spike with (7)–20–30–(50) appressed-ascending perigynia; lowest bract leaflet-like, usually shorter than the culm, very short sheathing, the same colour as the culm or sparingly reddish-purple at base; the upper bracts subulate and usually reddish-purple at base; scales narrowly ovate, acute to subacuminate, 2.5–3.0 mm. long, occasionally longer than the perigynia but usually shorter, usually shiny, light to dark purplish-red, with obsolete to broad hyaline margins, and obsolete to broad (usually narrow) midveins of lighter colour; perigynia short-ovoid to suborbicular, weakly inflated, 2.5–3.5 mm. long \times 1.5–2.2 mm. wide, two-ribbed, nerveless, membranaceous, granular, puncticulate, pale greenish-castaneous to castaneous, sometimes minutely and dilutely purplish-colored just below the beak, short-stipitate, beak 0.4 mm. long, bidentate, hyaline at tip, lightly to strongly purplish-red-tinged below; achenes averaging 1.4 mm. long \times 0.9 mm. wide, granular, light brown; stigmas 3.

In the citations which follow, the abbreviation (CAN) is used for specimens in the herbarium of the National Museum of Canada; all others are in the herbarium of this Division.—**Alaska:** Disturbed sandy-gravel area bordering old airstrip, Big Delta, *Cody & Webster 5480*; sandy soil in depression in cleared area, Delta Junction, Mile 268 Richardson Highway, *Cody & Webster 5947*. **Yukon:** Ear Lake, Whitehorse, *M. P. & R. T. Porsild 49* (CAN); open pine woods, east slope of Rose River valley, Mile 77 Canol Road, *Porsild & Breitung 10252* (CAN); alluvial meadows on west bank of Nisutlin River opposite Mile 36 Canol Road, *Porsild & Breitung 10760, 10762* (CAN); river flats above Rink Rapids, Yukon River, *Macoun 53896* (CAN); moist area along path, willow thicket, west slope of Moosehide Mountain, Dawson, *Calder & Billard 3784*. **Mackenzie District:** Moist crevices in calcareous rocks, Alexander Falls, Hay River, *Lewis 643*; in sand by roadside, Seven Mile Lake, 27 miles west of Fort Smith, *Cody 4640*. **Alberta:** Livingston Valley at the Gap, August 11, 1951, *Malte*; near C. P. R. Notch, Banff, *Macoun 14022* (CAN); Kananaskis, *Macoun 13421A* (CAN); Canmore, *Macoun 13421* (CAN); Moose Mt., Elbow River, *Macoun 25433B* (CAN); Jumping Pound Creek, *Macoun 25434* (CAN); Mt. Coliseum, Nordegg, *Malte & Watson 1511* (CAN); low moist ground, spruce woods, moist fields, burned over area, Nordegg, Clearwater Forest Reserve, *Cormack 582, 584, 754, 775, 789, 790C*; low ground by bog, Pigeon Lake, 40 miles southwest of Edmonton,

Turner 5009; edge of hay slough, Pigeon Lake area, *Turner 7239*; moist area, Edmonton, *Moss 6019*; moist area, Whitemud Creek, Edmonton, *Turner 2570*; grassland 2 miles northwest of Harmon Valley, *Moss 7718*; McAllister Creek, north of Dunvegan, *Macoun 59530* (CAN); woodland, Beaverlodge, *Jenkins 167*; Moose Lake District, Wood Buffalo Park, *Raup 1939, 1940* (CAN); Pine Lake District, Wood Buffalo Park, *Raup 1941* (CAN); trail about 10 miles southwest of Fitzgerald, *Raup 1942*



Fig. 1. Distribution of *C. raymondii* and *C. atratifomis* in Canada

(Can); poplar-spruce woods, 1 mile southwest of Fort Smith, *Cody & Loan 4498*. **Saskatchewan:** In loam, roadside 4 miles east of McKague, June 26, 1938, *Breitung*; moist places, McKague, *Breitung 8618*; low ground, woodland trail, 2 miles west of Veillardville, *Breitung 718*; trail, Tallpines, July 4, 1935, *Ledingham*; road through swamp, Prince Albert National Park, July 4, 1934, *Fraser*; moist ditch by highway, Montreal Lake, June 21, 1941, *Fraser* (CAN); Jack Pine woods, Candle Lake, Melfort District, *Boivin & Breitung 6261*; Methye River, *Macoun 13417* (CAN). **Manitoba:** Moist soil along margin of wood-road, Gillam, *Schofield 1270* (Type).

C. raymondii is a western species of the coniferous boreal forest ranging in southern Canada from Manitoba to Alberta and in the north from the southern Mackenzie District westward to Alaska. Although there are no records from British Columbia, as indicated by the accompanying map, it is undoubtedly present in the northeastern part of the province, and it may extend southward

into northern Montana. *C. raymondii* is the western counterpart of *C. atratifomis* (*sensu lato*) which was based on *C. ovata* Rudge from Newfoundland, and stated by Britton to be distributed from "Newfoundland to the mountains of New England, west to the Northwest Territory." As now restricted, *C. atratifomis* in Canada ranges from Labrador, Newfoundland, and Nova Scotia (Cape Breton Island), westward over most of Quebec² (apparently absent in the southwestern part of the province), with an isolated occurrence in the Port Arthur—Fort William area at the head of Lake Superior in Ontario. Its general distribution as shown on the map is based on Raymond's figure 3 (l. c.), and specimens in the herbaria of the National Museum of Canada and this Division.

In the majority of cases the two species may be readily distinguished solely on the color of the spikes. The table below, however, sets out additional characters by which they may be separated.

	<i>C. raymondii</i>	<i>C. atratifomis</i>
SPIKES	always two-toned in color. only slightly compressed.	predominantly blackish or dark brown in color, occasionally somewhat two-toned usually strongly compressed.
PERIGYNIA	moderately inflated. ovoid to suborbicular. pale greenish-castaneous to castaneous, occasionally dilutely purplish colored just below the beak. tip of beak hyaline.	weakly inflated. obovate or ovate to narrowly ovate or elliptical. suffused with purple, usually the same color as the scales. tip of beak reddish-purple.
ACHENES	confined in lower $\frac{2}{3}$ of perigynia.	confined in approximately lower $\frac{1}{2}$ of perigynia.
SCALES	light to dark purplish-red. obsolete to broad hyaline margins. obsolete to broad midveins of lighter color.	dark purplish-red. obsolete to very narrow hyaline margins. no midvein of lighter color; or, if present, obsolete to very narrow.
LEAVES	reduced basal leaves purplish-black to light brownish-purple.	reduced basal leaves bright reddish-purple.

²For the distribution of *C. atratifomis* in eastern Canada see: Raymond, M. Cypéracées de l'île Anticoste. *Carex* et Kobresia. *Can. Jour. Res. C.* 28, fig. 3, p. 441, 1950.

The writer would like to express his appreciation to Dr. B. Boivin of this Division for assistance with the Latin diagnosis. It is a pleasure to name this species for Mr. M. Raymond who has been most helpful to the writer with various problems in the genus *Carex*.

NEW MISSOURI PLANT-RECORDS (1949-1951)

JULIAN A. STEYERMARK

SINCE the last report on plant records new to Missouri (Rhodora **51**: 115-119. 1949), a number of interesting species have been collected, some of them indicating new limits within Gray's Manual range. A few of these discoveries were indicated by the writer in a personal communication to Dr. Fernald before his death, and were incorporated in the new edition of the Manual. None of the following records has been published before and they are based upon specimens collected mostly by the author. Some have also been contributed by Mr. Bill Bauer, Mr. Leslie Hubricht, Mr. Harry Ahles, and Miss Shirley Sparling. All the specimens collected by the writer are deposited in the herbaria of Chicago Natural History Museum, Missouri Botanical Garden, and Gray Herbarium.

POTAMOGETON EPIHYDRUS Raf. var. NUTTALLII (C. & S.) Fern. This northern species, new to Missouri, was discovered in an upland sink-hole pond near another pond where *Decodon verticillatus* had been found and reported as new to the state (RHODORA **51**: 117. 1949). The previous southern limits for this variety were in Georgia and Tennessee. Lily Pond, on top of ridge south of Vinson Hol, T 31 N, R 1 E, NW $\frac{1}{4}$ sect. 23, 7 miles southeast of Centerville, Reynolds Co., September 5, 1949, *Steyermark 69232*.

ECHINODORUS TENELLUS (Mart.) Buchenau. The original pond locality near St. Louis where Engelmann had found this species in Missouri was destroyed long ago, and no collector since Engelmann's time has succeeded in finding another station. While studying the flora of sink-hole ponds, the writer chanced upon a natural upland pond in Howell County, southern Missouri, the margin of which was completely covered by this species. Abundant material was collected for distribution. This is the only known station for the species in Missouri and represents a new western limit for it in the central United States. Adobesee Pond, T 22 N, R 7 W, SE part sect. 36, 9 miles southeast of West Plains, Howell Co., September 4, 1949, *Steyermark 69124a*.

LOPHOTOCARPUS CALYCINUS (Engelm.) J. G. Sm., forma DEPAUPERATUS (Engelm.) Fern.

This was found in the water of a badly pastured and probably artificial pond, T 31 N, R 1 W, sect. 23, 4 miles southeast of Corridon, Reynolds Co., October 29, 1950, *Steyermark 71096*.

SAGITTARIA LATIFOLIA Willd., f. HASTATA (Pursh) Robins. This form, previously unreported for the state, is based upon *Steyermark 66028*, collected along Black River, 7 mi. southeast of Redford, Reynolds Co., August 22, 1948.

UNIOLA LAXA (L.) BSP. At the time of the discovery of *Lindera melissaeifolium* (Walt.) Blume and *Oldenlandia Boscii* (RHODORA 51: 153–162. 1949) in a section of southeastern Missouri, there was also collected an attractive grass with dark green, glossy foliage. This grass proves to be new to Missouri. Wooded small knolls and swales, T 22 N, R 4 E, $\frac{1}{4}$ SW sect. 35, $4\frac{3}{4}$ miles south of Naylor, Ripley Co., October 19, 1948, *Steyermark 66921*.

SCIRPUS ATROVIRENS Willd., forma SYCHNOCEPHALUS (S. N. Cowles) S. F. Blake. This form, previously unreported for Missouri, was found by Miss Shirley Sparling. The collection, in the herbarium of Iowa State College, is labelled *Sparling 1173*, bottom of ditch, clay, T 58 N, R 23 W, sect. 19, northeast of Chillicothe, Livingston Co., July 23, 1951.

SCIRPUS HALLII Gray. This is another sink-hole pond discovery to add to the ever-increasing list of unusual isolated coastal plain species occurring in or around the ponds. This is the only known station of this species for Missouri. The pond in which it was found is near Adobosee Pond, the location for *Echinodorus tenellus* noted above; T 22 N, R 7 W, north part of sect. 1, 9 mi. southeast of West Plains, Howell Co., September 4, 1949, *Steyermark 69122*.

CAREX COMPLANATA Torr. & Hook. This species has not previously been reported from Missouri, but I would refer a collection from northern Missouri, although out of the known range, to this species, rather than to *C. caroliniana*. It was found on sterile upland slopes around *Juniperus virginiana*, ravines tributary to Grand River, T 66 N, R 32 W, sect. 15, $\frac{1}{2}$ mi. south of Isadora, Worth Co., May 30, 1948, *Steyermark 65565*.

In this collection the sheaths, leaves, and perigynia are glabrous or glabrate. The perigynia are 2.5–3 mm. long, flattish on the inner face, rounded at the apex, and the achenes have only a slightly bent or declinate tip. In *C. caroliniana* the perigynia are scarcely compressed, both inner and outer faces strongly and subequally rounded, short-pointed at apex, and the achenes have a very abruptly bent tip. The characters of the perigynia (rounded or short-pointed at apex and achenes with slightly bent or abruptly bent tips), while not mentioned in the 8th edition of Gray's Manual, are accounted for in Mackenzie's treatment of the genus in North American Flora (pp. 318–319), and appear to be substantiated as valid differences between these two species by an examination of herbarium material.

CAREX STRAMINEA Willd. The discovery of this species also made from a sink-hole pond, represents a new southwestern limit for the species. It was previously known as far west as southern Indiana and southern Michigan. The tall culms growing in dense tussocks, nodding moniliform heads with spikes long-clavate at the base, and the broad round-ovate perigynia, are characteristics of the species. The collection was made in an upland sink-hole pond, T 31 N, R 6 W, sect. 32, 7 mi. south of Cedar Grove, Shannon Co., May 3, 1947, *Steyermark 64267*. More mature collections of this same species were made on June 26, 1951, and are represented by *Steyermark 71854* and *71855*.

CAREX TRICHOCARPA Muhl. The writer found this species in a swampy calcareous meadow in the southeastern Ozarks. As in the study of the sink-hole ponds, an intensive survey of these calcareous swampy meadows is yielding an increasing number of species new to the state flora and far removed from their nearest stations. Swampy meadow along West Fork of Black River, on property of Mr. D. C. Miner, T 33 N, R 3 W, sect. 23 and NE sect. 26, 3-3½ miles northwest of Greeley, Reynolds Co., July 6, 1951, *Steyermark 71977*.

The numerous erect, sterile leaves, attaining a height of nearly a meter, are a distinctive feature of this plant. The Missouri record represents a new southwestern limit of range for the species, known previously only as far southwest as northern Iowa. It is not to be confused, of course, with *C. laeviconica* Dewey, or *C. atherodes* Spreng., species previously found in Missouri and designated by earlier collectors and by some earlier authors as *C. trichocarpa* or varieties of it.

JUNCUS TENUIS Willd., forma *DISCRETIFLORUS* (F. J. Herm.) Fern. This form, new to Missouri, is based upon *Steyermark 64701*, from swampy meadow and pond in depression along road, T 33-34 N, R 16-17 W, sect. 36, 8 miles southwest of Lebanon, Laclede Co., July 5, 1947.

ALLIUM VINEALE L., forma *COMPACTUM* (Thuill.) Aschers. This Missouri collection, deposited in the herbarium of Iowa State College, is based upon *Sparling 57*, along ditch, partially shaded, T 58 N, R 24 W, sect. 14, north 3.3 miles and west 1.2 miles from Chillicothe, Livingston Co., June 15, 1950.

POLYGONATUM BIFLORUM (Walt.) Ell. The Missouri collections of this species are deposited in the herbarium of Iowa State College. They are based upon *Sparling 17*, fence row, unshaded, T 58 N, R 24 W, sect. 26, north 1.7 miles and west 0.8 miles from Chillicothe, Livingston Co., June 11, 1950, and *Sparling 1* from the same general locality.

HABENARIA PSYCODES (L.) Spreng. Mr. Bill Bauer sent the writer a fragment and later a flowering specimen of this species blooming in his wild flower garden in Webster Groves, a suburb of St. Louis. He stated that his plant originally was transplanted by him from Caney Mountain Refuge, along Caney Creek, T 23 N, R 13 W, sect. 8, 5½ miles north of Gainesville, Ozark Co. On July 23 the writer with Mr. Bauer visited this spot, but no plants were located. The sole record is based upon the plant

transplanted to Mr. Bauer's garden. It is *Steyermark 68585*, July 23, 1949.

JUGLANS NIGRA L., forma *OBLONGA* (Marsh.) Fern. This rare form of the black walnut was first reported from Missouri by W. A. Dayton in *RHODORA* 50: 147. 1948. The writer obtained his collection, the second record for the state, from the southeast part of the Ozarks bordering the Mingo Swamp of the Mississippi Embayment. Swampy meadow in valley of Stanley Creek, T 27 N, R 7 E, sect. 18, 6-7 miles northeast of Wappapello, Wayne Co., September 11, 1949, *Steyermark 69265*.

ALNUS SERRULATA (Ait.) Willd., forma *NOVEBORACENSIS* (Britt.) Fern. Typical *A. serrulata*, with the lower surfaces of the mature leaves glabrous or strongly glabrescent, is common throughout the Ozarks. The forma *noveboracensis* was obtained by the writer from the southeastern portion of the Ozarks, and is based on *Steyermark 63871*, along River aux Vases, T 36 N, R 7-8 E, sect. 5 and 7, 5-6 miles north and northeast of Coffman, Ste. Genevieve Co., July 6, 1946.

QUERCUS VELUTINA Lam., forma *MACROPHYLLA* (Dippel) Trel. A Missouri collection of this form is deposited in the herbarium of Iowa State College. It came from a sparsely wooded pasture, T 58 N, R 24 W, sect. 12, northwest of Chillicothe, Livingston Co., July 21, 1951, *Sparling 1152*.

POLYGONUM SETACEUM Baldw., var. *TONSUM* Fern. This variety has not been definitely reported previously from Missouri, although the range "Ky. to Okla.," given in the 8th edition of Gray's Manual, would imply inclusion of the state. A Missouri collection which should be referred to this variety was found on swampy ground along ravine tributary to Silver Creek, southwest of Arnica, T 35 N, R 25 W, sect. 32, Cedar Co., September 27, 1947, *Steyermark 65234*.

CERASTIUM VISCOSUM L., forma *APETALUM* (Dumort.) Mert. & Koch. This form, not previously reported from Missouri, is based upon the following collection: *Steyermark 67973*, on top of ridge, along Flat Creek, T 45 N, R 21 W, sect. 24, 2½ miles south of Sedalia, Pettis Co., May 20, 1949.

HOLOSTEUM UMBELLATUM L. A collection of this plant, not previously recorded from Missouri was made by Mr. Harry Ahles of the University of Illinois and is deposited in the Herbarium of that University. The plants were collected one mile south of Caledonia, Washington Co., April 22, 1950, *Ahles s. n.*

ADONIS AUTUMNALIS L. This cultivated garden annual was found by Mr. Bill Bauer growing as a ruderal in a wheat field near Gumbo, St. Louis Co., May 7, 1949, *Bauer 201*.

DELPHINUM EXALTATUM Ait. The first definite record in Missouri for this species is a collection examined by the writer in the New York Botanical Garden Herbarium. It was collected in a remote section of the Ozarks, along Current River, ½ mi. from Round Spring State Park, Shannon Co., 1942, by Mr. Leslie Hubricht.

HESPERIS MATRONALIS L. This addition to the state flora is based upon plants escaped from cultivation along roadside, T 49 N, R 27 W,

sect. 17, 5 miles northeast of Odessa, Lafayette Co., May 17, 1949, *Steyermark 67804*.

ERYSIMUM INCONSPICUUM (S. Wats.) MacM. Although recorded for Missouri in the 8th edition of Gray's Manual, this species had not been previously recorded for the state. A recent Missouri collection, deposited in the herbarium of Iowa State College, was made on a r. r. embankment, T 58 N, R 23 W, sect. 8, Chillicothe, Livingston Co., May 12, 1951, *Sparling 766*.

FILIPENDULA RUBRA (Hill) Robins. This striking plant is another addition to the increasing list of discoveries resulting from the botanizing of calcareous, swampy meadows in the southeastern section of the Ozarks. Iowa and Illinois were the previous western limits known for the species. At the locality given below, the species was very common, and occurred in an extensive, swampy, natural meadow, never previously pastured nor disturbed, with the newly reported *Carex trichocarpa* (see above), *Leersia oryzoides*, *Carex leptalea*, *Fuirena simplex*, *Phlox maculata*, *Lythrum alatum*, *Parnassia grandifolia*, *Epilobium coloratum*, *Solidago Riddellii*, *S. patula*, *Aster puniceus* var. *firmus* f. *lucidulus* (not mentioned in the 8th edition of Gray's Manual, but previously reported by the writer in RHODORA and subsequently collected in calcareous meadows in the adjacent southeastern Ozark counties of Washington, Dent, Reynolds, Shannon, and Howell counties), *Rudbeckia umbrosa*, *Cirsium muticum*, *Dulichium arundinaceum*, *Pedicularis lanceolata*, *Pycnanthemum virginianum*, *Lobelia siphilitica*, *Helenium autumnale*, *Aster novae-angliae*, and *Eupatorium perfoliatum*. The collection was made in a calcareous, swampy meadow along West Fork of Black River on property of Mr. D. C. Miner, T 33 N, R 3 W, sect. 23 and NE sect. 26, 3-3½ miles northwest of Greeley, Reynolds Co., July 6, 1951, *Steyermark 71974*.

ROSA SETIGERA Michx., forma **alba** Steyermark, f. nov., a typo recedit petalis albis brevioribusque.—Along roadside gravelly bank above swampy meadow along Bee Fork, T 32 N, R 2 W, sect. 22, on property of Mr. Reese, 4 miles southeast of Bunker, Reynolds Co., Missouri, July 7, 1951, *Julian A. Steyermark 72011*, TYPE, in Herb. Chi. Nat. Hist. Mus., isotypes in Gray Herbarium and Missouri Botanical Garden Herbarium.

In typical *R. setigera* the petals are roseate, fading to whitish, and the flowers are 4-8 cm. broad. In the forma *alba*, the petals are white from the first and half to two-thirds as long.

ROSA MULTIFLORA Thunb. This rose, which has been extensively planted as a living fence in many portions of Missouri and elsewhere, was found as a well-established escape in extreme northern Missouri, where it occurred along with the native vegetation in roadside thickets west of Devil's Horn, T 66 N, R 32 W, sect. 7, 3 miles northeast of Sheridan, Worth Co., May 31, 1948, *Steyermark 65608*.

PRUNUS VIRGINIANA L., forma **DEAMII** G. N. Jones. Not previously reported for Missouri, but now represented by *Steyermark 68962a*, northeast-facing wooded bluffs along Des Moines River northwest to

Coal Bank Hollow, T 66 N, R 7 W, sect. 24, 2-3 miles southeast of Dumas, Clark Co., August 13, 1949.

Other collections, such as *Steiermark 68075* from Sullivan Co., and *Steiermark 67548* from Platte Co., have the leaves pubescent beneath as described in f. *Deamii*, but the rachis glabrous as in typical *P. virginiana*. This intermediate condition has been noted in numerous other Missouri collections, a situation which makes it difficult to refer them definitely to one taxon or the other.

TRIFOLIUM PRATENSE L., forma *LEUCOCHRACEUM* Aschers. & Prantl. A collection with white corollas, which may be referred to this form, was collected in southwestern Missouri by the writer. It is *Steiermark 68576*, Caney Mountain Refuge, along Caney Creek, T 23 N, R 13 W, sect. 8, 5½ miles north of Gainesville, Ozark Co., July 23, 1949.

ROBINIA HISPIDA L. On a trip taken with Dr. L. J. Gier, six well-established shrubs belonging to this species and escaped from cultivation were found. It has not previously been recorded for the state. The collection is *Steiermark 67530*, on upper edge of wooded slopes, just west of old Union Mill distillery, along Platte River, T 54 N, R 33 W, sect. 6, 1-1¾ miles northwest and west-northwest of Edgerton, Platte Co., May 15, 1949.

LESPEDEZA THUNBERGII (DC.) Nakai. Often planted and sometimes escaping from cultivation, this showy species was found by the writer as a ruderal in open places in valley of Massa's Creek, T 47 N, R 4 W, sect. 25, 3 miles south of Jonesburg, Warren Co., September 30, 1951, *Steiermark 73020*.

POLYGALA SANGUINEA L., forma *ALBIFLORA* (Wheelock) Millsp. The collection which may be referred to this form was found on an upland dry rolling prairie, along highway C on south side of road just east of junction with highway 81, T 66 N, R 8 W, sect. 24, 3 miles northwest of Revere, Clark Co., August 14, 1949, *Steiermark 68976*. It has the bracts white with a greenish keel, the sepals whitish with greenish midrib and a suffusion of green along the middle, and the petals similar except for yellow tips. It is somewhat intermediate between the forma *albiflora*, in which the flowers are predominantly whitish, and forma *virescens* (L.) Farw., in which the flowers are predominantly greenish. However, since the flowers in the present collection have white rather than greenish color predominating, it is assigned to f. *albiflora*.

ACALYPHA GRACILENS Gray. The typical variety has not been previously recorded for Missouri. It is represented by the following two collections: *Shirley Sparling 553*, poorly drained alluvial meadow, T 58 N, R 24 W, sect. 10, 5 miles northwest of Chillicothe, Livingston Co., September 5, 1950; and *Steiermark 66676*, upper slopes of south-facing side, ravines following tributary of East Fork of Crooked River, T 53 N, R 27 W, sect. 10 and 11, 1-1¼ miles north of Millville, Ray Co., October 9, 1948.

EUPHORBIA ESULA L. This species, previously unreported for the state, was found in northern Missouri in a pasture, where it formed a large patch. The collection is *Steiermark 68051*, upland pasture along west

side of route 11, T 56 N, R 20 W, sect. 25, $2\frac{1}{2}$ miles southwest of Rothville, Chariton Co., May 21, 1949.

HYPERICUM CANADENSE L. This northern species can now be added to the flora of the state. It is based upon *Steyermark* 70133, open slopes along draw, Bookout Branch and ravines tributary to Spring Creek, T 64 N, R 18 W, SW $\frac{1}{4}$ sect. 21 and NE $\frac{1}{2}$ sect. 28, $4\frac{1}{2}$ miles northeast of Green City, Sullivan Co., August 25, 1950. This collection from north-eastern Missouri represents a new southwestern distributional limit for the species, previously known only as far southwest as Iowa and Illinois.

VIOLA TRILOBA f. *albida* Steyermark, f. nov., a typo differt petalis omnibus albidis.—Cherty draw in upland along route 13, $\frac{1}{2}$ mile northeast of Lampe, Stone Co., Missouri, April 29, 1949, *Julian A. Steyermark* 67440, TYPE, in Herb. Chi. Nat. Hist. Mus. This form differs in having all the petals white.

OENOTHERA PERENNIS L. This species was reported for Missouri by Munz (Bull. Torr. Bot. Club **64**: 304, 1937) on the basis of a cultivated specimen collected in St. Louis by Dr. Earl E. Sherff. Unfortunately, the great majority of Sherff's specimens labelled "St. Louis" were (according to personal communication with Dr. Sherff) collected either from cultivated plants found on the grounds of the Missouri Botanical Garden or in other parts of St. Louis. These specimens, represented by duplicates in several herbaria, have been misconstrued by other workers to represent collections of wild or spontaneous plants, which is certainly far from the real situation. Sherff's collection (no. 194) from St. Louis, cited by Munz from a Gray Herbarium specimen, was obtained, according to an examination of Dr. Sherff's notebook, on July 2, 1910, and undoubtedly was collected from cultivated plants at the same time with such other cultigens as *Hydrangea quercifolia*, *Sedum acre*, *Heuchera sanguinea*, and *Tolmiea Menziesii*. The present writer found this species growing wild in a remote portion of the central Ozarks as a natural component of the herbaceous vegetation, and this represents the first wild record for its occurrence in the state. The collection was made on an upland flat, wet woods bordering sink-hole pond, T 32 N, R 4 W, sect. 30, $\frac{3}{4}$ mile south of Turtle P. O., Dent Co., June 25, 1951, *Steyermark* 71808.

CORNUS FLORIDA L., forma *RUBRA* (Weston) Palmer & Steyer. In correspondence with Mr. E. J. Palmer during 1951 with reference to the station which he originally discovered of the pink-flowered dogwood in Missouri, he writes, "I found the tree along a rocky bluff of a stream near 'Moss Spring' about four miles northwest of Webb City on the Carl Junction road. It was a medium-sized tree, about 16 or 20 feet tall . . . I looked for it again a few years ago and failed to find it. So, I fear it has been destroyed. It is the only time I have found it in Missouri."

The writer located a second wild station for this form in the White River section of the southwestern Ozarks. The collection came from along shallow draw in limestone upland, 0.2 mile south of Cedar Creek P. O., T 22 N, R 19 W, sect. 24, just west of road, Taney Co., April 26, 1949, *Steyermark* 67343. A single tree was found there associated with

the ordinary-colored type. At the time of this visit the bracts were found to have a rich, deep pink or rose color nearly throughout or only in the upper half, but during a visit on May 5, 1951 the color was noted to be less intense, perhaps because the flower was aging or becoming faded at a somewhat later stage of anthesis. During the latter part of October, 1951, accompanied by Mr. Albert E. Vatter, Jr., I revisited the same locality and observed that the winter flower bud scales of the tree referred to forma *rubra* were of a dull, purplish-rose color, contrasting with the greenish-brown or dull gray-brownish color of ordinary flowering dogwood. During the spring of 1951, Mr. Bill Bauer sent a specimen with rose-colored bracts representing the same color form. It came from a natural stand of dogwood on his wooded property near the Meramec River near Kimmswick in St. Louis County. Thus, there are now known at least two wild stations for this color form.

LYSIMACHIA QUADRIFLORA Sims, forma *albescens* Steiermark, f. nov. a typo recedit corolla albida vel lactescens.—Swampy meadow along route 60 along spring branch tributary to right fork of Carter Creek, T 27 N, R 1 E, west part of sect. 2, 6.7 miles northeast of Van Buren, Carter Co., Missouri, July 4, 1949, *Julian A. Steiermark 68397*, TYPE in Herb. Chi. Nat. Hist. Mus. This differs from typical *L. quadriflora* in having a whitish or cream-colored corolla from early through late anthesis.

CONVOLVULUS SEPIUM L., forma *MALACHOPHYLLUS* Fern. A Missouri collection that should be referred to this form came from a cleared area along r. r., T 58 N, R 23 W, sect. 8, northeast of Chillicothe, Livingston Co., June 11, 1951, *Shirley Sparling 916*. The specimen is deposited in the herbarium of Iowa State College.

CONVOLVULUS SEPIUM L., forma *COLORATUS* Lange. Miss Sparling's collection no. 1314 from Livingston Co., Missouri, is representative of this pink-colored form, which had not been recorded previously from the state.

CUSCUTA CAMPESTRIS Yuncker. This species, not previously recorded from Missouri, is represented from the state by a collection made in a Lespedeza field, T 58 N, R 24 W, sect. 11, northwest of Chillicothe, Livingston Co., August 18, 1951, *Sparling 1329*, deposited in the herbarium of Iowa State College.

HYDROPHYLLUM APPENDICULATUM Michx., f. *album* Steiermark, f. nov., a typo recedit corolla alba.—Rich, north-facing slopes bordering wooded valleys, Knobnoster State Park, 3-5 miles southwest of Knobnoster, Johnson Co., Missouri, May 19, 1949, *Julian A. Steiermark 67915*, TYPE, in Herb. Chi. Nat. Hist. Mus. This differs from typical *H. appendiculatum* in having completely white corollas.

SCUTELLARIA NERVOSA Pursh, f. *alba* Steiermark, f. nov., a typo recedit corolla alba.—Bottom woods along Yellow Creek, T 56 N, R 19 W, sect. 20 and 17, at and just north of Rothville, Chariton Co., Missouri, May 21, 1949, *Julian A. Steiermark 68024*, TYPE, in Herb. Chi. Nat. Hist. Mus. In typical *S. nervosa* and varieties the corolla is pale bluish. In the form described it is white.

PRUNELLA VULGARIS L., var. *LANCEOLATA* (Bart.) Fern., forma *CANDIDA* Fern. This form, with the corolla completely white, may be added to the Missouri flora on the basis of the following collection: *Steysmark 71732*, upland north of Elk Hollow, T 34 N, R 7 W, west part of sect. 1, 4½ miles southeast of Anutt, Dent Co., June 25, 1951.

PHYSOSTEGIA ANGUSTIFOLIA Fern. A Missouri collection of this species is *Steysmark 69121*, upland limestone prairie, T 23 N, R 8 W, north part of sect. 3, 8 miles south of West Plains, Howell Co., September 4, 1949.

GRATIOLA VISCIDULA Pennell. This species (including *G. viscidula*, *Shortii*) has hitherto been found in the eastern states of the Piedmont region and Coastal Plain from Delaware and Maryland south to South Carolina and Georgia westward in the interior low plateau and southern Appalachians to southern Ohio, eastern Tennessee, and northwestern Alabama. The Missouri collection was discovered around the margins of a remote sink-hole pond in the southeastern Ozark region. It, like other remarkable examples of isolation of coastal plain and Piedmont species in the Ozarks, represents a new northwestern limit for the species, separated in the present instance by approximately 475 miles airline. Other instances of similar disrupted distributions of primarily coastal plain, Piedmont or eastern species, isolated on the Ozark Plateau are illustrated by *Scirpus etuberculatus* and *Eleocharis equisetoides*. In addition, many species whose distribution is limited to the coastal plain and Mississippi Embayment area, such as *Hottonia inflata* and *Nyssa aquatica*, are known in Missouri, outside their stations in the swampy sections of the southeastern lowlands in the state, only from certain sink-hole ponds of the Ozarks. The collection is *Steysmark 72109*, upland sink-hole pond, Gilmore Pond (known also as Grassy Pond), T 27 N, R 6 W, sect. 34, between Jack's Fork of Current River and Flat Rock Hollow, 6½ miles northwest of Montier, Shannon Co., July 8, 1951. The species was common all along the margin of the pond, and most of the plants were partly submerged at their base.

PEDICULARIS CANADENSIS L., forma *albescens* Steysmark, f. nov., a typo recedit corolla plerumque albida.—Low, mossy slopes along creek, cherty shallow ravine along route 5, 2½ miles south of Mansfield, Wright Co., Missouri, May 1, 1949, *Julian A. Steysmark 67499*, TYPE, in Herb. Chi. Nat. Hist. Mus. The color variations of this species and its forms (f. *bicolor*, f. *flava*, and f. *praeclara*) range from yellow, yellow and cream-colored, and yellow with purple or crimson, to crimson. The present form differs from all of these in having the corolla mostly white throughout.

RUPELLIA STREPENS L., forma *alba* Steysmark, f. nov., a typo recedit corolla alba.—At base of slopes of rich, wooded ravines tributary to Chariton River, T 66 N, R 16 W, south part of sect. 22, northeast of Livonia, 6 miles southwest of Glenwood, Schuyler Co., Missouri, August 26, 1950, *Julian A. Steysmark 70292*, TYPE in Herb. Chi. Nat. Hist. Mus. This form with the corolla white was found growing with typical large-flowered *R. strepens* (*Steysmark 70286*) which had a lavender to blue-violet corolla, and with the small-flowered *R. strepens*, f. *cleistantha* (Gray) S. McCoy, also possessing a lavender corolla.

LONICERA MORROWI Gray. This cultivated species has not been previously recorded as an established escape in Missouri. It has recently been collected by Miss Shirley Sparling. Her collections, deposited in the herbarium of Iowa State College, are *Sparling 782* (in flower) and *Sparling 1104* (in fruit), roadside, T 58 N, R 24 W, sect. 21, Chillicothe, Livingston Co., May 13, 1951. The filaments of Miss Sparling's collection no. 782 are pubescent, in this respect only differing from otherwise typical *L. Morrowi*.

CAMPANULA APARINOIDES Pursh. It was previously noted in this report that *Carex trichocarpa* and *Filipendula rubra*, newly discovered for Missouri in calcareous, swampy meadows of the southeastern Ozarks, represented species of northern and eastern affinities at their southwestern southern limit of distribution. *Campanula aparinoides* is another example of the same phenomenon. Separated by hundreds of miles from the nearest previously known stations in the adjacent states of Illinois, Iowa, and Nebraska, the Missouri collection was found in a swampy meadow associated with *Liparis Loeselii* and other species of northern or eastern affinities. The Missouri collections are: *Steiermark 69320*, swampy meadow along Big Creek, T 31 N, R 3 W, NW $\frac{1}{4}$ sect. 8, $2\frac{1}{4}$ miles south of Melton, $4\frac{1}{4}$ miles southeast of Bunker, Shannon Co., September 25, 1949, and same locality, *Steiermark 68382*, July 3, 1949.

LOBELIA SIPHILITICA L. \times *L. CARDINALIS* L. A natural hybrid between these two species was found by Mrs. Cora Steiermark along Little North Fork of White River between Burse Ford and Nave Ford, on east side of river, T 21 N, R 15 W, sect. 9, 1 mile southwest of Pontiac, Ozark Co., September 26, 1949. The plant occurred here with both parent species. The corolla was of a deep rose-lavender, with a shape like that of *L. cardinalis*, but the leaves and pubescence of the calyx resembled the type found in *L. siphilitica*. Since this area was to be inundated by one hundred feet of water when the Bull Shoals dam became a reality, an attempt was made to rescue the plant by removing it from the locality. Unfortunately, it did not survive the winter of northern Illinois but a pressed herbarium specimen of the upper part of the plant is preserved.

COSMOS SULPHUREUS Cav. This garden annual has not previously been found as a ruderal in Missouri. In company with Dr. Robert Thorne, it was recently collected on shaded upland along route 76, sect. 23, $1\frac{1}{2}$ miles southwest of Ava, Douglas Co., September 1, 1951, *Steiermark 72534*.

LACTUCA HIRSUTA Muhl., var. *SANGUINEA* (Bigel.) Fern. *Lactuca hirsuta* Muhl. was cited by Palmer and Steiermark in their Annotated Catalogue of Flowering Plants of Missouri (p. 681) as occurring in Jasper County. Fernald (*RHODORA* 40: 477-481. 1938) has shown that typical *L. hirsuta* is a rare and local species ranging from Pennsylvania to Virginia and Louisiana. The Jasper Co. collection may possibly be referred to another species. Several collections of var. *sanguinea* have, however, recently been made in various parts of the southern Ozark region. They are: *Steiermark 71733*, around margin of Brushy Pond (sink-hole pond),

on east side of route 19, T 25 N, R 4 W, south part of sect. 1, $3\frac{1}{2}$ miles west of New Liberty P. O., Oregon Co., June 26, 1951; and *Steyermark 72012* from Dent. Co., July 7, 1951.

TRAGOPOGON MAJOR Jacq. This species, previously unreported from Missouri, has been recently added to the flora of the state. It is represented by two collections: *Steyermark, Swink, & Rouffa 71731*, open places along route 66, east of Eureka and east of Meramec River bridge, St. Louis Co., June 15, 1951; and *Shirley Sparling 963*, cindered area along r. r., T 58 N, R 23 W, sect. 5, northeast of Chillicothe, Livingston Co., June 24, 1951.—CHICAGO NATURAL HISTORY MUSEUM AND MISSOURI BOTANICAL GARDEN.

CARDAMINE DIGITATA RICHARDSON (CRUCIFERAE).—Two substitute names have been proposed for this species of Alaska and Yukon Territory for no valid reason. O. E. Schulz (Bot. Jahrb. **32**: 372. 1903) transferred *Dentaria digitata* Lam. (Encycl. Meth. **2**: 268. 1786) to *Cardamine* and then proceeded to coin the name *C. hyperborea* (op. cit., p. 550) to replace *C. digitata* of Richardson (Franklin, Journey to the Shores of the Polar Sea. Botanical Appendix, p. 743. 1823). Schulz stated that "*C. digitata* (Lam. 1786)" had priority over Richardson's name. However, the specific name *digitata* was not used in *Cardamine* by Lamarek. The use of this name in *Cardamine* by Richardson for an entirely different species than that of Lamarek predates Schulz's transfer of Lamarek's name by eighty years. More recently Hultén (Flora of Alaska and Yukon, Lunds. Univ. Årssk. **41**: 838. 1945) proposed the name *Cardamine Richardsonii*¹ to replace *C. digitata* Richardson, saying that "*C. hyperborea* Schulz cannot be used for it either, as it does not at all agree with the description of that plant." Since *C. hyperborea* Schulz was a direct substitution for *C. digitata* Richardson, it rests on the same type and whether the description Schulz gave fits or not is not significant in so far as name priority is concerned. If there were any reason to reject *C. digitata* Richardson, then *C. hyperborea* Schulz, being the first substitute name, would be valid. However, *C. digitata* Richardson has priority and is valid. *C. hyperborea* Schulz and *C. Richardsonii* Hultén are both superfluous names for the same species.—R. C. ROLLINS.

¹ Properly rejected by Porsild, Bull. Nat. Mus. Canada **121**: 190. 1951. Also cf. Porsild, Sargentia **4**: 41. 1943.

Volume 54, no. 645, including pages 217-236, was issued 26 September, 1952.

RATES FOR SPECIAL NUMBERS OF RHODORA

Many of the single numbers can be supplied only at special prices, as follows:

Vol. 12, no. 134: 50c no. 138: 45c	Vol. 37, no. 436: 70c no. 437: 50c no. 4 ²⁰ : 60c no. 440: 00c no. 441: 50c no. 443: 55c no. 444: 55c	Vol. 46, no. 547: 50c no. 548: 45c no. 550: 55c no. 551: 55c no. 552: 50c
Vol. 13, no. 151: 70c		Vol. 47, no. 553: 75c no. 554: 50c no. 555: 60c no. 556: 75c no. 557: 75c no. 558: 50c no. 559: 75c no. 560: 60c no. 562: 85c no. 563: 85c
Vol. 14, no. 163: 60c	Vol. 38, no. 445: 50c no. 448: 70c no. 450: 70c no. 455: 55c no. 456: 50c	Vol. 48, no. 566: 60c no. 567: 50c no. 568: 60c no. 569: 50c no. 570: 50c no. 571: 60c no. 572: 50c no. 573: 70c no. 574: 70c no. 575: 70c no. 576: 50c
Vol. 15, no. 171: 45c	Vol. 39, no. 458: 50c no. 463: 55c no. 464: 75c no. 466: 55c	Vol. 49, no. 577: 50c no. 578: 60c no. 580: 60c no. 581: 70c no. 582: 80c no. 583: 75c no. 587: 50c no. 588: 50c
Vol. 16, no. 182: 45c	Vol. 40, no. 471: \$1 no. 476: 50c no. 477: 55c no. 478: 60c no. 479: 55c	Vol. 50, no. 589: 45c no. 590: 60c no. 591: 40c no. 592: 60c no. 593: 60c no. 594: 40c no. 595: 75c no. 596: 85c no. 597: 55c no. 598: 40c no. 599: 60c no. 600: 65c
Vol. 17, no. 193: 45c	Vol. 41, no. 482: 55c no. 486: 55c no. 487: \$1 no. 488: 60c no. 489: 95c no. 490: 50c no. 491: 50c	Vol. 51, no. 603: 80c no. 604: 85c no. 609: 75c no. 610: 70c no. 611: 70c no. 612: 70c
Vol. 18, no. 205: 50c	Vol. 42, no. 499: 50c no. 500: \$1 no. 502: 50c no. 503: 70c	Vol. 52, no. 616: 50c no. 617: 70c no. 618: 60c no. 623: 50c no. 624: 60c
Vol. 19, no. 224: 45c no. 225: 50c	Vol. 43, no. 506: \$1 no. 509: \$1 no. 512: 50c no. 513: 50c no. 514: 70c no. 515: 75c	
Vol. 21, no. 241: 45c no. 243: 45c	Vol. 44, no. 520: 70c no. 525: 75c no. 526: 75c no. 527: 70c no. 528: 60c	
Vol. 23, no. 265: 45c no. 268: 45c no. 269: 45c no. 270: 45c no. 271: 45c no. 274: 45c no. 275: 45c	Vol. 45, no. 529: \$1 no. 531: 60c no. 532: 55c no. 533: 55c no. 534: 75c no. 535: 70c no. 538: 85c no. 539: 75c no. 540: 75c	
Vol. 24, no. 279: 45c no. 283: 45c	Vol. 46, no. 542: 50c no. 544: 60c no. 545: 55c no. 546: 55c	
Vol. 25, no. 296: 45c		
Vol. 26, no. 304: 50c no. 305: 60c no. 306: 45c		
Vol. 28, no. 331: 45c		
Vol. 29, no. 346: 45c		
Vol. 30, no. 351: 50c no. 356: 45c no. 357: 45c		
Vol. 31, no. 364: 50c no. 369: 50c no. 370: 50c		
Vol. 32, no. 374: \$1 no. 376: 45c no. 382: 50c no. 383: 45c		
Vol. 33, no. 386: 60c no. 388: 45c no. 389: 45c no. 391: \$1		
Vol. 34, no. 403: 45c no. 407: 45c		
Vol. 35, no. 410: 50c no. 418: 50c no. 419: 50c		
Vol. 36, no. 425: 55c no. 426: 50c no. 429: 70c no. 430: 55c		
Vol. 37, no. 433: \$1 no. 435: 60c		

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY

44. FERNALD, M. L. & WIEGAND, K. M. The Genus *Euphrasia* in North America. (Reprinted from *Rhodora*, XVII. 181-201. 1915.) \$.25
45. BLAKE, S. F. I. Compositae new and transferred, chiefly Mexican. ROBINSON, B. L. II. New, reclassified, or otherwise noteworthy Spermatophytes. MACBRIDE, J. FRANCIS. III. Certain Boraginaceae new or transferred. (Reprinted from *Proc. Am. Acad.* LI. 515-548. 1916.) .30
46. FERNALD, M. L. & WEATHERBY, C. A. The Genus *Puccinellia* in Eastern North America. With 4 plates. (Reprinted from *Rhodora* XVIII. 1-23. 1916.) .40
47. BLAKE, S. F. A Revision of the Genus *Polygala* in Mexico, Central America, and the West Indies. With 2 plates. (Published by the Gray Herbarium. 1-122. 1916.) .65
48. MACBRIDE, J. FRANCIS. I. The True *Mertensias* of Western North America. II. Revision of the Genus *Oreocarya*. III. Notes on Certain Boraginaceae. (Published by the Gray Herbarium. 1-58. 1916.) .50
49. MACBRIDE, J. FRANCIS. I. A Revision of the North American Species of *Amsinckia*. II. Further Notes on the Boraginaceae. III. Notes on the Hydrophyllaceae and a few other North American Spermatophytes. MACBRIDE, J. FRANCIS & PAYSON, EDWIN BLAKE. IV. New or Otherwise Interesting Plants from Idaho. MACBRIDE, J. FRANCIS & PAYSON, EDWIN BLAKE. V. A Revision of the *Erigerons* of the Series *Multifidi*. (Published by the Gray Herbarium. 1-79. 1917.) .60
50. FERNALD, M. L. I. Some *Polygonums* new to North America. II. New or critical Species or Varieties of *Ranunculus*. III. Some Color-Forms of American *Anemones*. IV. New Species, Varieties, and Forms of *Saxifraga*. V. A new *Vitis* from New England. VI. *Gentiana clausa* a valid Species. VII. Some Forms of American *Gentians*. VIII. Some new or critical Plants of Eastern North America. (Reprinted from *Rhodora*, XIX. 133-155. 1917.) .25
51. BUTTERS, F. K. Taxonomic and Geographic Studies in North American Ferns. I. The Genus *Athyrium* and the North American Ferns allied to *A. Filix-femina*. II. *Botrychium virginianum* and its American Varieties. With 1 plate. (Reprinted from *Rhodora*, XIX. 169-216. 1917.) .40
52. BLAKE, S. F. I. Notes on the Systematic Position of *Clibadium*, with Descriptions of some New Species. II. A Revision of the Genus *Dimerostemma* Cass. III. New and Noteworthy Compositae, chiefly Mexican. IV. Descriptions of New Spermatophytes, chiefly from the Collections of Prof. M. E. Peck in British Honduras. (Published by the Gray Herbarium. 1-106. pp. 1917.) .90
53. MACBRIDE, J. FRANCIS. I. New or otherwise interesting Plants, mostly North American Liliaceae and Chenopodiaceae. BLAKE, S. F., II. Further new or noteworthy Compositae. BLAKE, S. F., III. New Spermatophytes collected in Venezuela and Curaçao by Messrs. Curran and Haman. BLAKE, S. F., IV. New Plants from Oaxaca. With 1 plate. (Published by the Gray Herbarium. 1-65. pp. 1918.) .50
54. BLAKE, S. F. A Revision of the Genus *Viguiera*. With 3 plates. (Published by the Gray Herbarium. 1-205. pp. 1918.) 1.50